

5 December 1955

MEMORANDUM FOR: THE RECORD

SUBJECT : Visit to NBS

1. Time and Place of Meetings: The meetings were held at NBS on 29 November 1955.

2. <u>Attendance:</u>	Mr. Chrzanowski	Sound Section	NBS
	Mr. Koidan	Sound Section	NBS
	Mr. Wildhack	OBI	NBS
	Mr. Stern	OBI	NBS
		APD	

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3. Purpose of Meetings:

- a. Discuss the evaluation of contact microphones
- b. Discuss a mechanical demodulator
- c. Discuss the progress of the ultra-sonic measurement program at NBS

4. Discussion:

a. Mr. Koidan submitted to the undersigned the completed calibrations on the two [ ] microphones. NBS was given a rochelle salt crystal, unit # 5, and an ADP crystal, unit # 4. The response at NBS was calculated in volts/g. The two microphones showed similar response tabulations. Maximum output was obtained around 500 cps. The unit # 5, rochelle salt crystal, produced a sizable output from 200 to 2500 cps. Both microphones peaked twice, at 500 cps and at 2500 cps. For comparison the results from NBS and from [ ] for the same microphone, rochelle salt, unit # 5, were plotted on a chart, using output in millivolts/G versus frequency. Both curves are similar, except that the results obtained by NBS show a very sharp peak at 2500 cps, whereas, [ ] results show a minor peak. The extreme difference in output at 2500 cps is hard to explain, other than difference in instruments and experimental error. The undersigned questioned Mr. Koidan about this variance, and had him recheck his tabulations. Mr. Koidan rechecked and stated that NBS could find no error in their tabulations.

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-2-

b. The undersigned met Mr. Chrzanowski now acting chief of the Sound Section due to the year's absence of Dr. Cook.



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Mr. Chrzanowski was unaware of any work being done by the Sound Section on a mechanical detector or of our discussion with Dr. Cook about such a device. The problem was then presented to him and he was shown a copy of the patent. Since Mr. Chrzanowski has been doing work on very thin plastic films, he considered the construction of such a device within the realm of possibility. He stated that he had been using polyethylene films 0.00010 inch thick which he said was thinner than fly wings and might do for diaphragm of the demodulator. He stated that it would take him two weeks to obtain a copy of the patent and another two weeks to consider the problem in detail. At that time he would let us know whether he considered the project feasible and his interest in continuing it.

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c. Mr. Wildhack, CBS, reported on the progress of wall measurements using ultra sonics. So far, NBS has not been able to obtain any results on low frequency (10-15 cps) tests. Work is continuing on high frequency pulse gauging, but correlation studies so far have produced unsatisfactory results. NBS is considering two new approaches to the problem. One method under consideration is the use of pulsed intensity microwaves. Mr. Wildhack is now studying this method and considers it feasible. He is planning on making rough tests on walls and at that time will indicate the type of equipment and frequency spectrum used.

d. The second method under consideration is the use of seismograph equipment as a rough measuring device. Shock signals would be supplied by passing trucks, trains, etc., or by the passage of elevators. At present, information as to feasibility of this method is being investigated. No actual tests have been run.

e. The undersigned gave Mr. Wildhack the literature on Branson Instrument's ultra sonic thickness tester. Mr. Wildhack stated that he had seen the instrument in question and doubted that it was applicable for measurement of masonry walls. On steel plate it works well, but only up to twelve inches in thickness.

-3-

f. NBS believes that ultra sonic measurement will be practical for close measurements in walls of limited thickness. Study is continuing on feasibility of using ultra sonics on walls of thickness of twelve inches or greater.

  
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**Attachments:**

- 1 - NBS Tabulations
- 1 - Response Curve

**Distribution:**

- 1 - NBS Mike File
- 1 - Ad Hoc 25
- 1 - Chrono
- 1 - AWS

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